

IPv6 Multicast

NETWORLD+INTEROP2004 TOKYO NOC member/
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Cyber Kansai Project board member/
WIDE Project/
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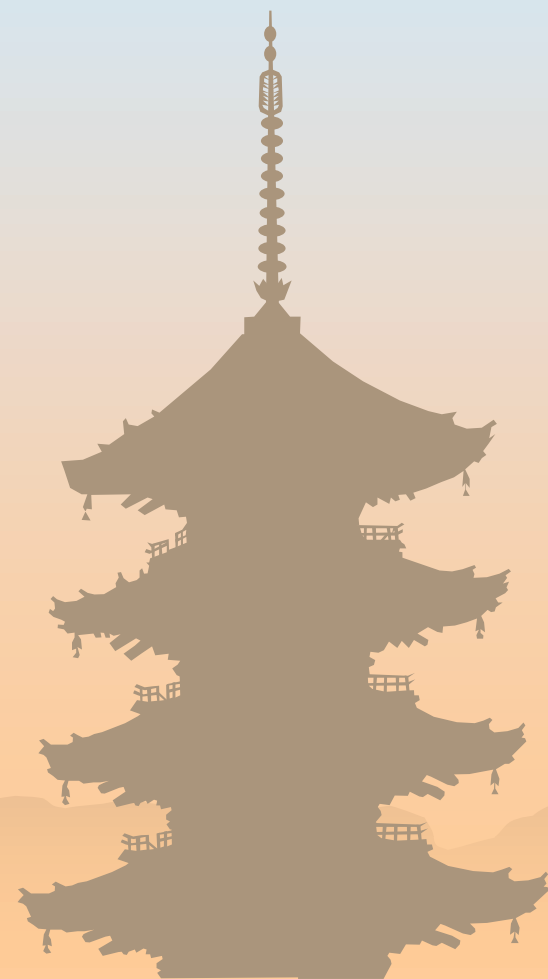


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❁ Japanese Carrier IPv6 multicast Service



NETWORLD+INTEROP2004 TOKYO



NETWORLD+INTEROP

❁ NETWORLD+INTEROP 2004 TOKYO (a.k.a. Interop) is most advanced computing and networking event in the world.

- <http://www.interop.jp/english/>
- Place: MAKUHARI MESSE (Japan Convention Center, Chiba, Japan)
- Conference: 6/28 – 7/2
- Exhibition: 6/30 – 7/2
- Exhibition Visitors: 141,605



Key technologies in 2004

- ❁ Technology keywords (decided by NOC Team)
 - 10GbE based network(IPv4/IPv6 dual stack)
 - PoF(Plastic Optical Fiber)
 - **IPv6 Multicast**
- ❁ Solution Showcases (supported by NOC Team)
 - Security
 - VoIP
 - IPv6
 - **Broadband solution / ShownetTV**



Broadband Solution Showcase/ ShownetTV

- ❁ Live media type:
 - DVTS(Digital Video Transfer System)*
 - IPv6 multicast(about 30Mbps x 4ch)
 - WindowsMedia™
 - IPv6 multicast(500kbps - 3Mbps x 4ch)
 - IPv4/IPv6 unicast
 - RealVideo™
 - IPv4 unicast(500kbps – 3Mbps x 4ch)

*DVTS: <http://www.sfc.wide.ad.jp/DVTS/>



IPv6 Multicast protocol

❁ PIM-SM, Dynamic/Static RP

- Interoperability problem
- PIM SSM

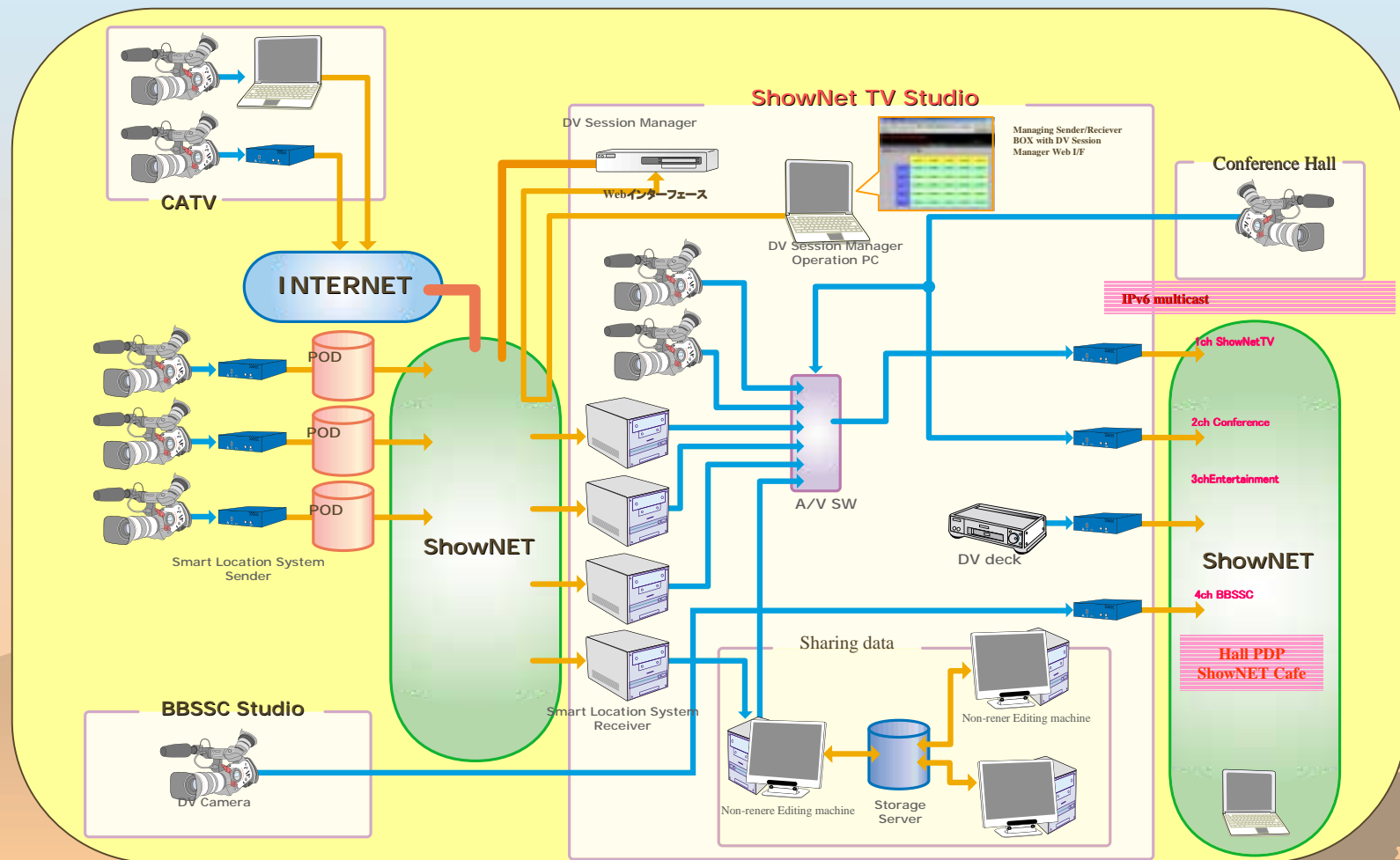
❁ MLD snooping

- MLDv1 (WindowsXP)
- MLDv2 (NW equipment)



NETWORLD+INTEROP2004

ShowNetTV



ShowNetTV Broadcasting(multicast)



ShowNetTV Studio

WindowsMedia
IPv6 multicast



Internet, Flet's Square

DVTS IPv4 multicast



CATV

DVTS IPv6 multicast



Monitor



POD PDP



Laptop PCs



ShowNetCaffe

Laptop PCs receiving DVTS IPv6 Multicast

In the Broadband Solution ShowCase, there are 18 laptop PCs receiving MAX 4ch DVTS stream at the sametime. (IPv6 Multicast)

Application: DVTS Windows Client Software special edition for N+I2004 TOKYO



BBSSC Laptop 18 PCs



ShowNet Cafe

- ShowNet Cafe, visitors can access ShowNetTV contents with Desktop PC or Laptop using DVTS client software.
- Or download and install DVTS software from ShowNetTV Web to visitors PC.



NETWORLD+INTEROP2004
ShowNetTV

TOP About ShowNetTV 番組表 今年の番組と過去 過去の番組 過去の番組

視聴方法

DVTSプレイヤー
Download

このソフトウェアは1999年4月1日より、本館のウェブサイトにアップロードされています。ご自身のPCにダウンロードして、インストールしてください。

[＜DVTSプレイヤー インストール方法＞](#)

[＜うまく再生されない場合はこちら＞](#)

動作環境
Windows XP
Direct9.0c 推奨
Microsoft TCP/IP version 6

＜プレイヤー画面＞



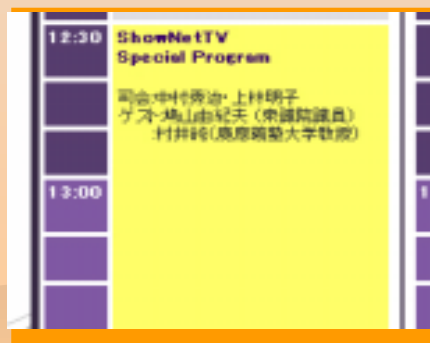
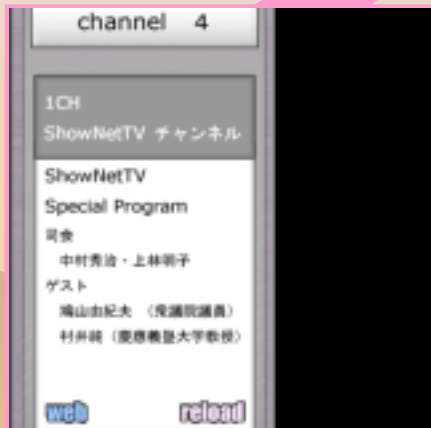
1 チャンネルが選択されます
2 チャンネルが選択されます
3 チャンネルが選択されます
4 チャンネルが選択されます
5 選択したチャンネル名と説明が表示されます
6 選択したチャンネルの番組が再生されます
7 チャンネルの情報を検索して表示します
8 チャンネルの情報を検索して表示します

＜キーボードショートカット一覧＞

1	チャンネル1	2nd	フルスクリーン表示。
2	チャンネル2	F11	もう一度押すと、通常のサイズに戻ります。
3	チャンネル3	Alt+F4	終了します。
4	チャンネル4	F12	バージョン情報が表示されます。

DVTS Windows Client Software special edition for NETWORLD+INTEROP2004

- Synchronize to ShowNetTV website time table(XML).
- Display the up-to-date program information on real-time.
- Clicking program title, more detail information shows at pop-up window.



ShowNetTV timetable

Windows Media Streaming



ShowNetTV Studio



Encoding Real System.
WindowsMedia format

BBSSC Encoding NOC

WindowsMedia
IPv6 multicast



NTT WEST Flet's Square
<http://www.flets-square.info/>



Windows Media Service Setting TIPS

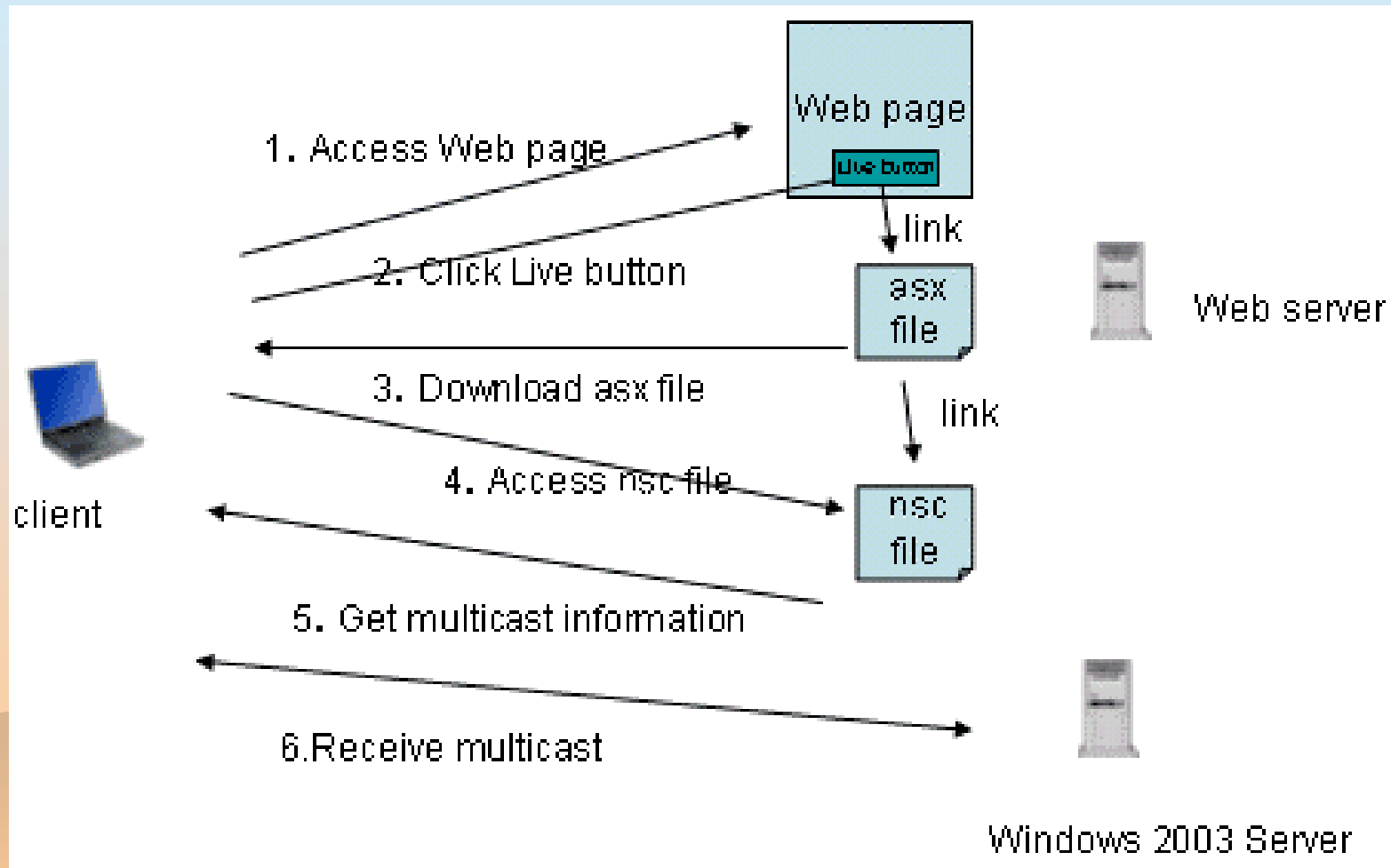
See also:

<http://www.ipv6style.jp/en/tryout/20041019/index.shtml>(English)

<http://www.ipv6style.jp/jp/tryout/20041019/index.shtml>(Japanese)



WindowsMedia multicast sequence



Before setting up

❁ Important! “package selection”

- If you want to provide multicast Windows Media 9 stream, you have to purchase Windows Server 2003 “**Enterprise Edition**” or “**Datacenter Edition**”. “Standard Edition” are not supported.
- Refer:

<http://www.microsoft.com/resources/documentation/WindowsServ/2003/standard/proddocs/en-us/Default.asp?url=/resources/documentation/WindowsServ/2003/standard/proddocs/en-us/wmserver/loggingconnectionlessmulticastclientinformation.asp>



Setting up

❁ Pre-condition

- Windows Server has already installed IPv6 protocol stack, and using IPv6.
- Windows Media Service has already setup, and operating.

❁ TIPS

- If you want to make publish content point as using Windows Media setup wizard, unfortunately you cannot soon make IPv6 multicast broadcasting. There are some TIPS.

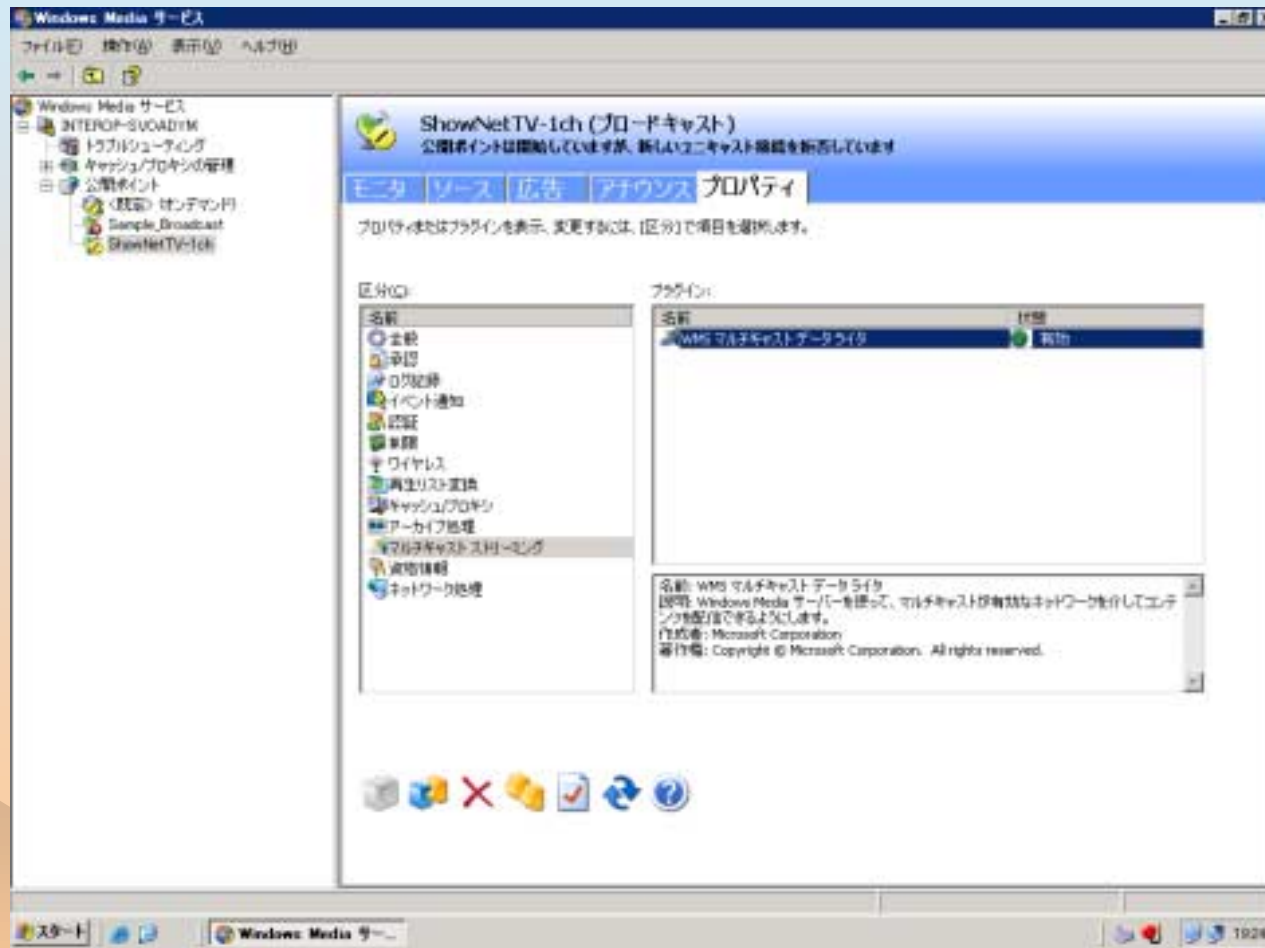


Running Windows Media Service

- Click “Start” → “Control Panel” → “Windows Media Service”
- See detail step below:
[http://www.ipv6style.jp/en/tryout/20041019/index.shtml\(English\)](http://www.ipv6style.jp/en/tryout/20041019/index.shtml(English))
[http://www.ipv6style.jp/jp/tryout/20041019/index.shtml\(Japanese\)](http://www.ipv6style.jp/jp/tryout/20041019/index.shtml(Japanese))
- Important point → “STEP 22-26”

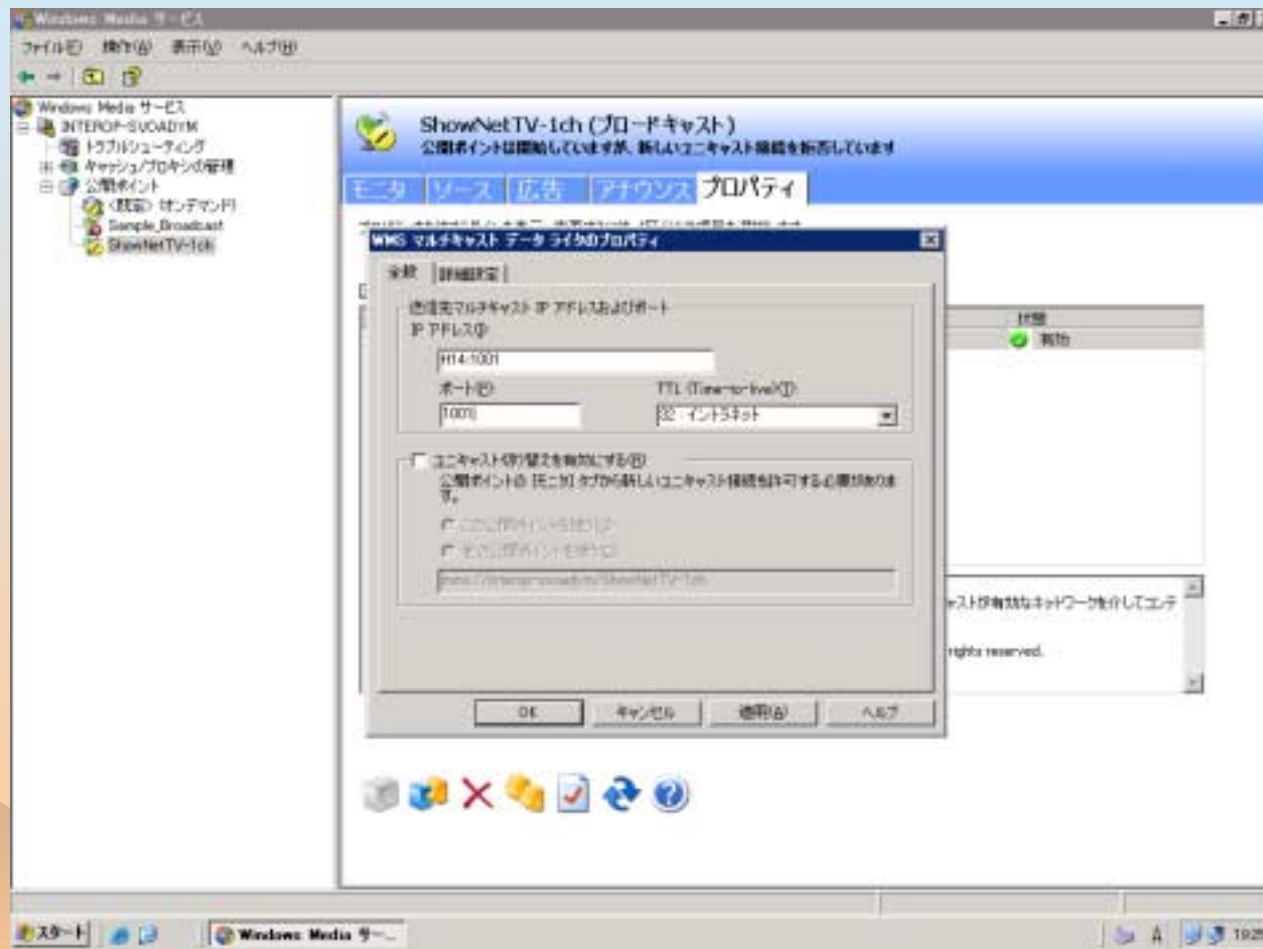


STEP22



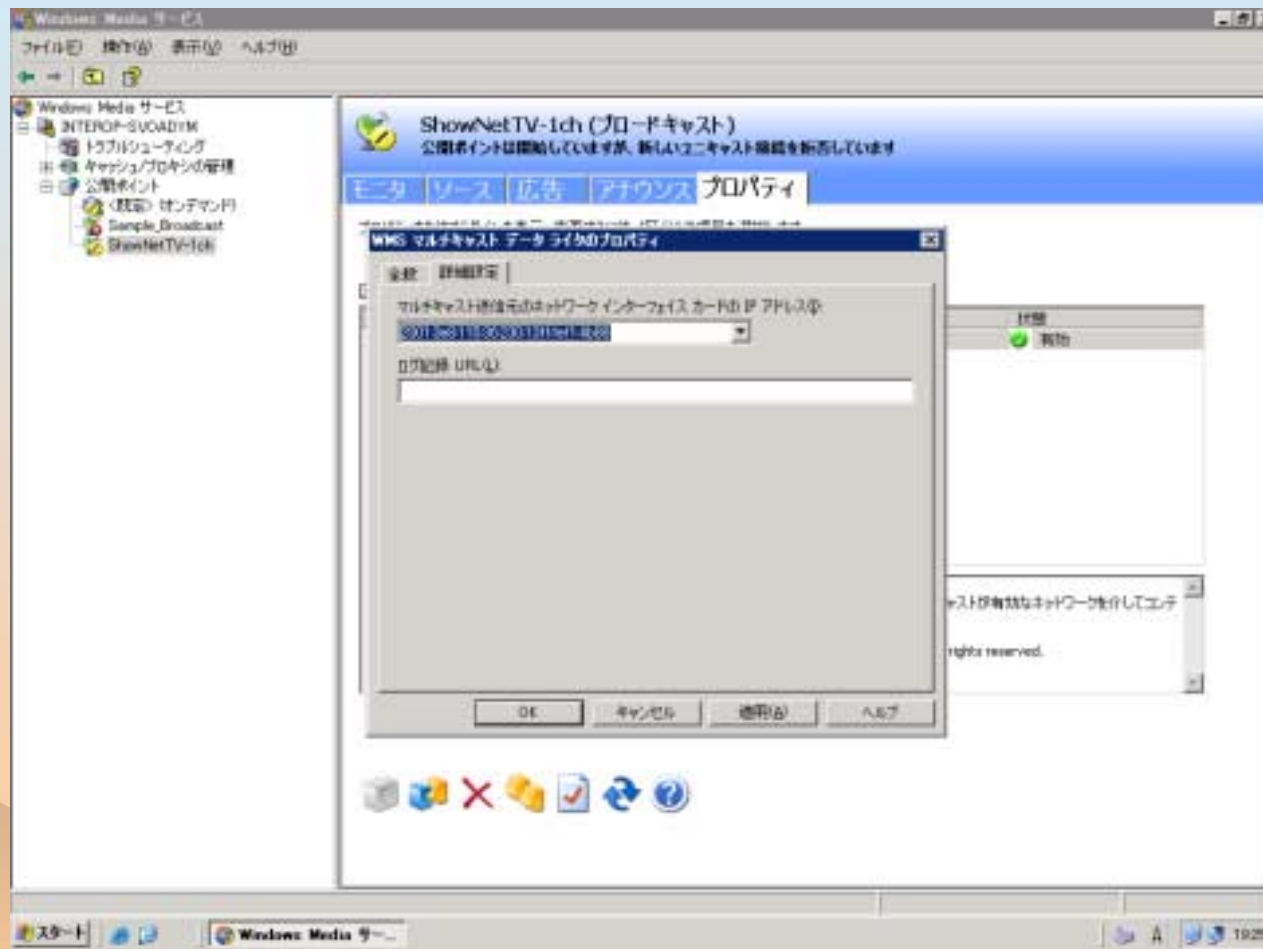
22: You have added new publishing point information. Select new profile and click on Multicast Streaming at the property.

STEP23



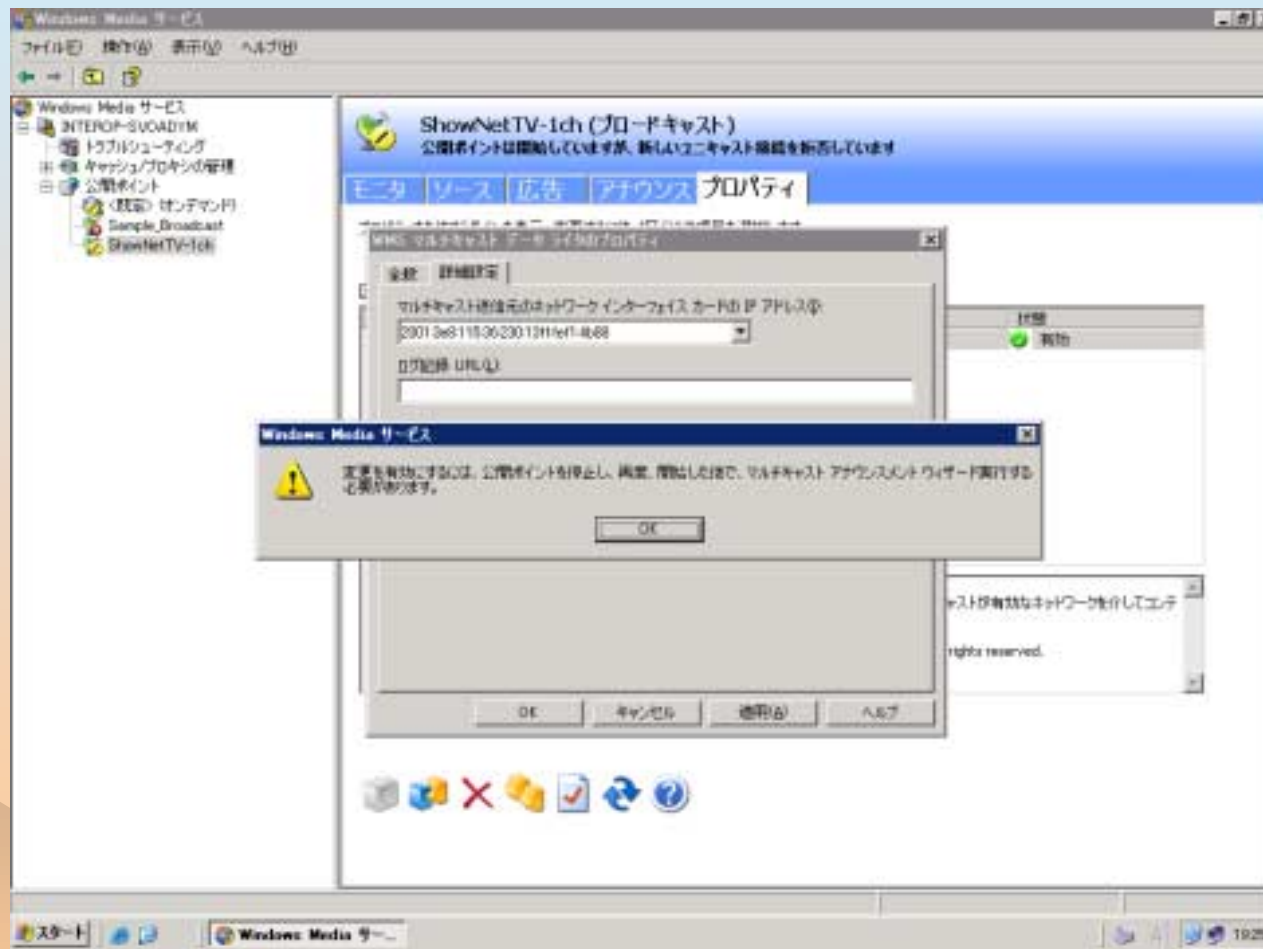
23: You see the current multicast address in IPv4. Change this to IPv6 multicast address. Change the port number if necessary.

STEP24



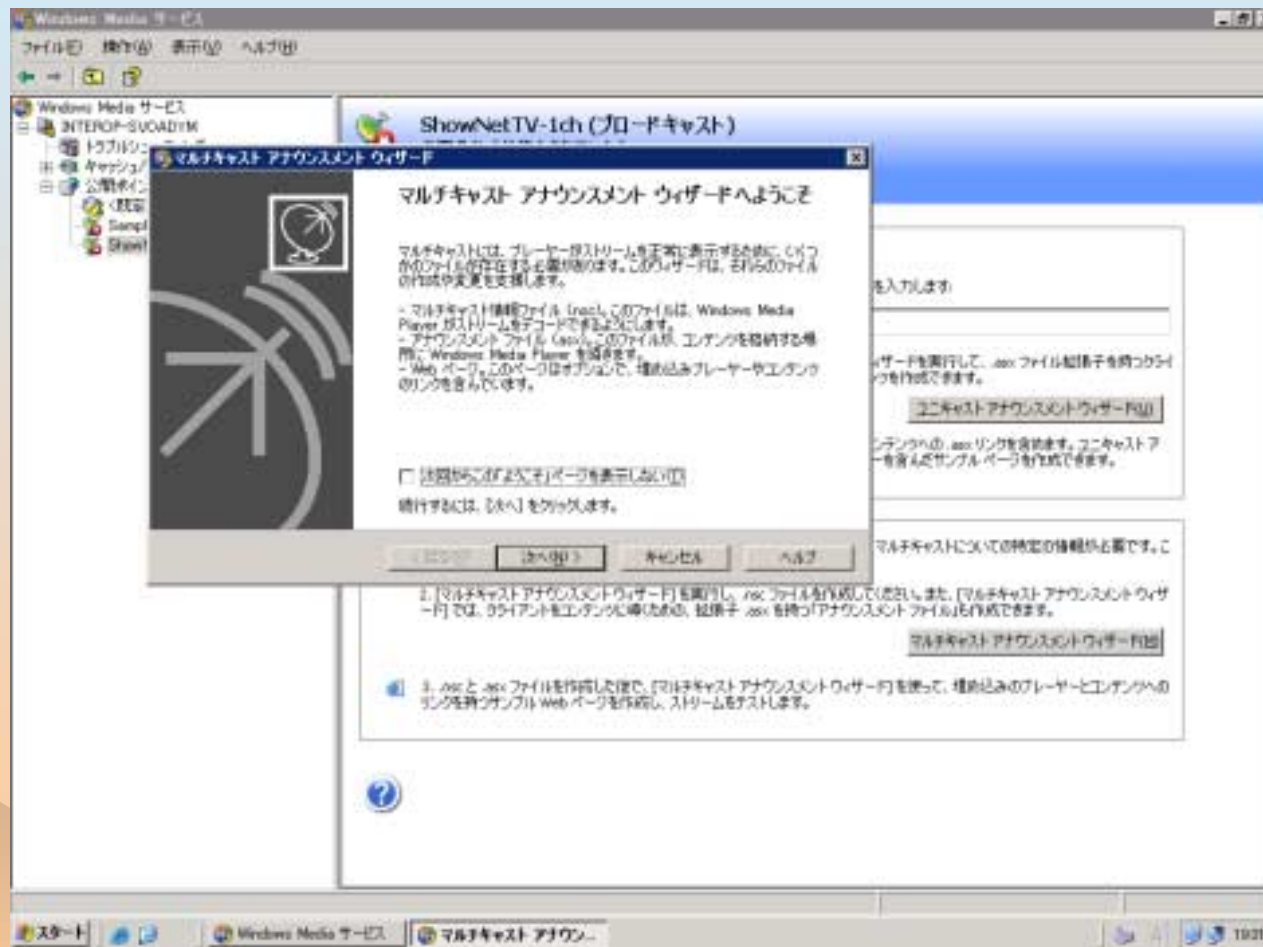
24:Select detailed setting and choose the network interface for IPv6 multicast.

STEP25



25:For the changes to take effect, you are prompted to launch wizard again.
Press OK and choose Announcement.

STEP26



26: You have launched Multicast Announcement Wizard.
You repeat Step 13 and later. But you just need to renew nsc file.

WindowsXP multicast client TIPS



IPv6 Firewall

- ❁ When you can not play Windows Media IPv6 Multicast contents. This may be occurred by IPv6 firewall (Windows ICF) or Security tools which protecting multicast stream as attack.
- ❁ Windows XP has supported IPv6 firewall since Jul, 2003.
 - Advanced Networking Pack for Windows XP
 - KB817778
 - **Date Published:**7/23/2003
 - The Advanced Networking Pack for Windows XP is a recommended update for Window XP SP1. It includes a new version of the IPv6 stack, an **IPv6 firewall**, and a peer-to-peer infrastructure.
 - Refer:
<http://www.microsoft.com/downloads/details.aspx?familyid=E88CC382-8CE6-4739-97C0-1A52A6F005E4&displaylang=en>
- ❁ So, You would like to play ipv6 multicast streaming data, you must disable ipv6 firewall function
 - “Control Panel” → “Administrative Tool(?)” → “Service”, IPv6 Internet Connection Firewall. Or changing setting of security tools.



IPv6 Multicast Service for Consumer

NTT West FLET'S HIKARI Premium



Comparison of Specifications



B FLET'S



FLET'S HIKARI Premium

Backbone Network

Regional IP Network (IPv4)

Regional IP Network (**IPv6**)

Speed

100Mbps
(100Mbps B-PON shared)

100Mbps
(**1Gbps GE-PON** shared)

Fees

4,300JPY/Month

4,300JPY/Month
(incl. "Embedded" Applications)

"Embedded" Applications

- High-quality Video Communication
- Security Protection

Other Applications

✿ Unicast Contents Distribution
etc.

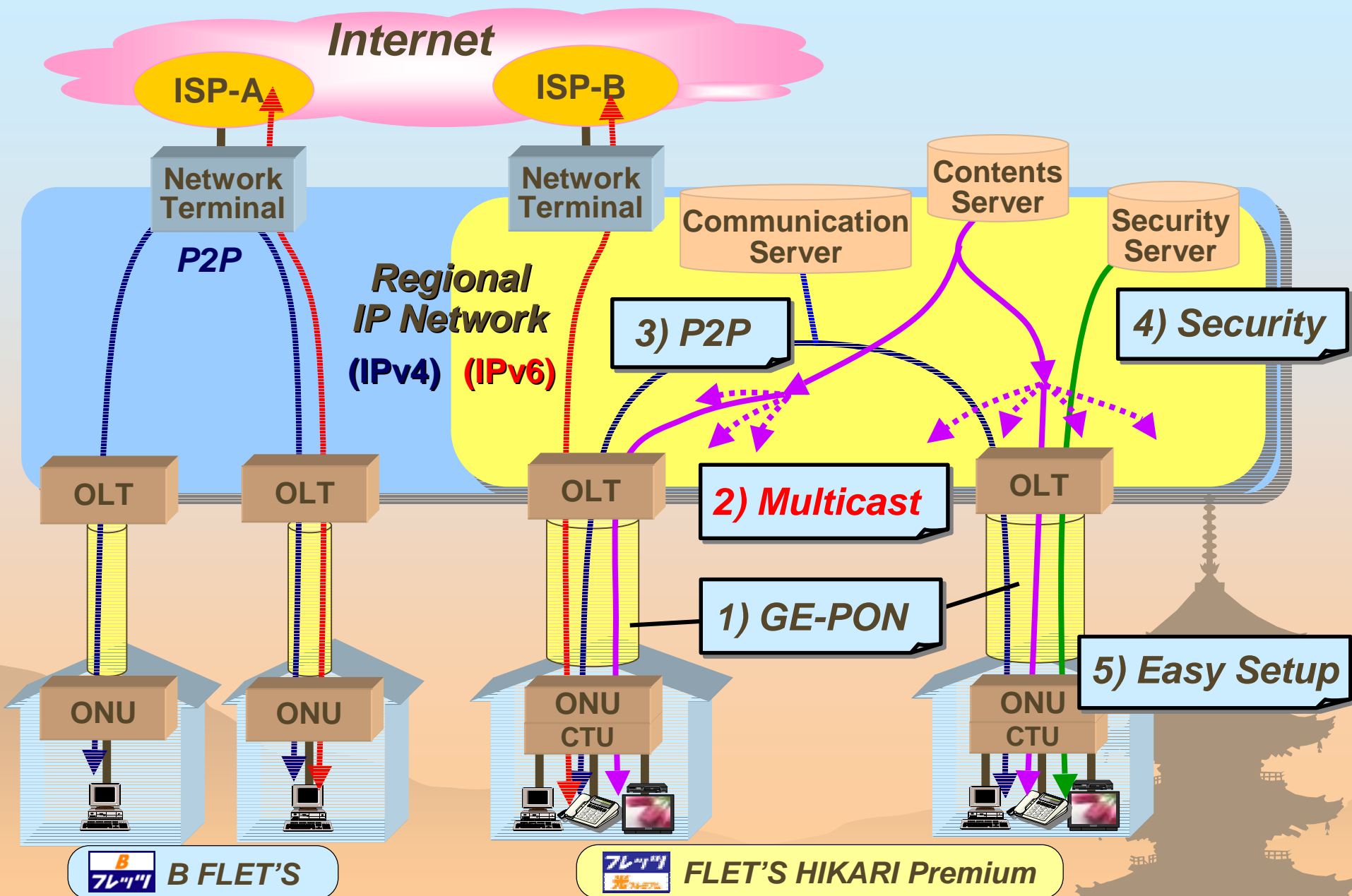
- ✿ VoIP
- ✿ IP Broadcasting
- ✿ Multicast Contents Distribution
- ✿ P2P
- ✿ QoS

Competition

- Speed
- Fee

- Speed
- Fee
- **Applications**
- **Quality**

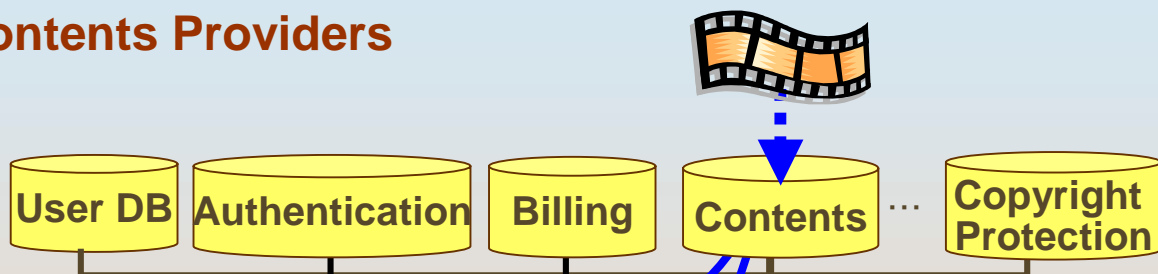
Key Features of New Services



Multicast Contents Distribution

- IP broadcasting services: packaged programs by Contents Providers
- VOD services: online video rental services
- Streaming video distribution services by STB plus TV

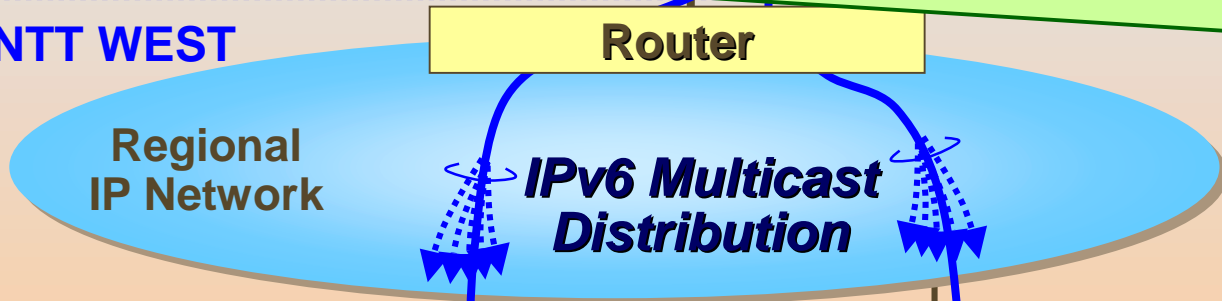
Contents Providers



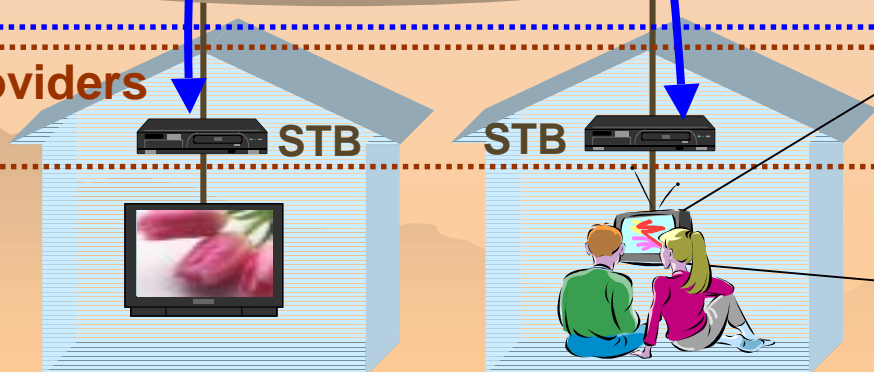
Service Lineup

- 1) 100Mbps interface
- 2) 1Gbps interface

NTT WEST



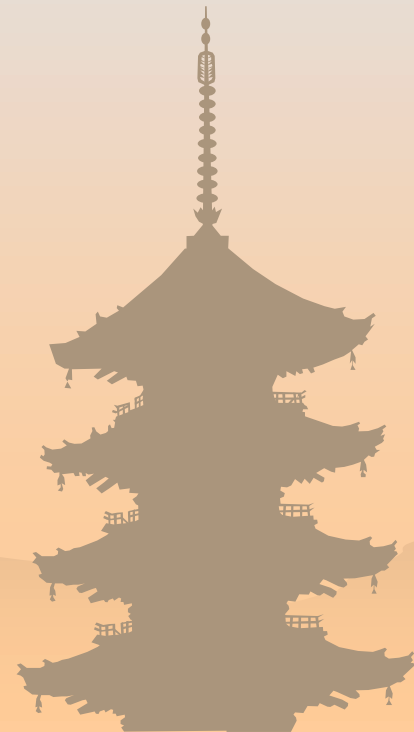
Contents Providers



TV screen image



Thank you!



Reference point

- ✿ How to setup WindowsMedia9 IPv6 Multicast Streaming(IPv6 Style)
 - <http://www.ipv6style.jp/en/tryout/20041019/index.shtml>
 - <http://www.ipv6style.jp/jp/tryout/20041019/index.shtml>
- ✿ DVTS(WIDE Project)
 - <http://www.sfc.wide.ad.jp/DVTS/>
- ✿ Cyber Kansai Project
 - <http://ckp.jp/indexe.html> (English), <http://ckp.jp/>(Japanese)
- ✿ NTT West Corp.
 - http://www.ntt-west.co.jp/index_e.html (English)
 - <http://www.ntt-west.co.jp/> (Japanese)

